

CLAIMS

What is claimed is:

1. An apparatus for separating dissolved lubricant from a stream of refrigerant, said apparatus comprising:

a chamber;

a refrigerant inlet communicating with said chamber for delivering lubricant bearing refrigerant to said chamber, the refrigerant vaporizing as it is delivered to said chamber leaving un-vaporized lubricant to precipitate within the chamber;

an outlet communicating with said chamber for delivering refrigerant vapor from said chamber to a downstream location; and

a mist arrester associated with said outlet and through which refrigerant vapor passes as it flows from said chamber;

said mist arrester separating from the refrigerant vapor remaining lubricant that is entrained in the refrigerant vapor flow.

2. An apparatus for separating dissolved lubricant from a stream of refrigerant as claimed in claim 1 and further comprising a porous filter through which contaminated refrigerant passes as it is delivered to said chamber for aerating the refrigerant into the chamber to enhance vaporization thereof.

3. An apparatus for separating dissolved lubricant from a stream of refrigerant as claimed in claim 1 and wherein said mist arrester is a filter paper.

4. An apparatus for separating dissolved lubricant from a stream of refrigerant as claimed in claim 2 and wherein said filter paper is impregnated with a hydrophobic substance.

5. An apparatus for separating dissolved lubricant from a stream of refrigerant as claimed in claim 4 and wherein said hydrophobic substance includes silicone.

6. An apparatus for separating dissolved lubricant from a stream of refrigerant as claimed in claim 5 and wherein said filter paper is a Whatman 1 PS filter paper.

7. An apparatus for separating dissolved lubricant from a stream of refrigerant as claimed in claim 1 and wherein said apparatus further comprises a valve selectively operable to allow forward flow of contaminated refrigerant through said chamber and said mist arrester for cleaning said refrigerant and reverse flow of cleaned refrigerant bypassing said chamber.

8. An apparatus for separating dissolved lubricant from a stream of refrigerant as claimed in claim 7 and wherein said

valve includes a valve core rotatably disposed within a valve chamber, said valve core having first and second through ports and being rotatable between a first position wherein refrigerant is directed by one of said through ports into said chamber and a second position wherein refrigerant is directed by the other through port to bypass said chamber.

9. An apparatus for separating dissolved lubricant from a stream of refrigerant as claimed in claim 8 and wherein said valve core is made of a plastic material,

10. An apparatus for separating dissolved lubricant from a stream of refrigerant as claimed in claim 9 and wherein said plastic material is Teflon.

11. A method of separating dissolved lubricant from a contaminated refrigerant, said method comprising the steps of:

(a) injecting the contaminated refrigerant into a chamber such that said refrigerant substantially vaporizes within the chamber while a portion of the dissolved lubricant remains liquid;

(b) allowing the liquid lubricant to precipitate within the chamber to separate the lubricant from the refrigerant vapor;

(c) passing the substantially vaporized refrigerant and any remaining lubricant suspended therein through a mist arrestor to separate the remaining lubricant from the refrigerant; and

(d) extracting the refrigerant from the chamber for further processing.

12. A method of separating dissolved lubricant from a contaminated refrigerant as claimed in claim 11 and wherein step (a) includes forcing the contaminated refrigerant through a porous filter within the chamber to atomize the refrigerant and thereby enhance the vaporization thereof.

13. A method of separating dissolved lubricant from a contaminated refrigerant as claimed in claim 11 and wherein step (c) includes passing the substantially vaporized refrigerant through a hydrophobic filter medium.

14. A method of separating dissolved lubricant from a contaminated refrigerant as claimed in claim 13 and wherein the filter medium is impregnated with a hydrophobic substance.

15. A method of separating dissolved lubricant from a contaminated refrigerant as claimed in claim 14 and wherein the hydrophobic substance includes silicone.

16. A method of separating dissolved lubricant from a contaminated refrigerant as claimed in claim 16 and wherein the hydrophobic filter medium is a Whatman 1 PS filter.

17. An apparatus for separating a dissolved contaminate from a flow of volatile fluid, said apparatus comprising a chamber, an inlet port for injecting the volatile fluid flow into said chamber in such a way that the fluid at least partially vaporizes while the contaminate remains at least partially liquid, an outlet port for extracting partially vaporized fluid from said chamber, and a mist arrester arranged such that said partially vaporized fluid passes through said mist arrester before exiting said chamber, said mist arrestor separating remaining traces of contaminate from said partially vaporized fluid.

18. An apparatus for separating a dissolved contaminate from a flow of volatile fluid as claimed in claim 17 and wherein the fluid is a refrigerant.

19. An apparatus for separating a dissolved contaminate from a flow of volatile fluid as claimed in claim 18 and wherein said contaminate includes an lubricant.

20. An apparatus for separating a dissolved contaminate from a flow of volatile fluid as claimed in claim 17 and further including an atomizer associated with said inlet port for atomizing the volatile fluid as it is ejected into said chamber.

21. An apparatus for separating a dissolved contaminate from a flow of volatile fluid as claimed in claim 17 and further comprising a bi-directional valve associated with said apparatus, said valve having a first configuration allowing fluid flow through said chamber and a second configuration wherein fluid flow bypasses said chamber.